Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A learning item sequencing system for optimizing a student's learning speed, the system comprising:

a computer including one or more memory portions;

the memory portions comprising:

a problem database containing a plurality of learning items, wherein a learning item is presented on each learning trial;

a trial record database, for storing response data regarding the student's response to each learning item, wherein the response data includes data relating to speed and accuracy;

software for implementing a trial loop, wherein the learning trials are presented to the student and response data are collected; and

software for implementing a sequencing algorithm, wherein the algorithm sequences the learning items to be presented by associating with a learning item a priority score as a function of the response data collected from prior learning trials and restricts one or more learning items from being presented in at least one learning trial based upon the priority score associated with the learning item.

-2-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

    2.   (Original) The sequencing system of claim 1, wherein the response data collected for each learning trial includes the student's accuracy in answering the presented learning item and the student's response speed if the item was correctly answered.

    3.   (Original) The sequencing system of claim 2, wherein each learning trial includes a priority score associated with the particular learning item.

    4.   (Original) The sequencing system of claim 3, wherein the sequencing algorithm continuously updates the priority score of each learning item based on the response data collected on the immediately preceding learning trial.

    5.   (Original) The sequencing system of claim 4, wherein the number of trials since a particular learning item was last presented is a variable used by the sequencing algorithm in continuously updating the priority score of each learning item.

    6.   (Previously Presented) The sequencing system of claim 4, wherein relative importance of the student's speed and accuracy in sequencing of learning items is a parameter.

    7.   (Original) The sequencing system of claim 5, wherein the software for implementing a trial loop includes a problem selector, the problem selector selecting the learning item with the highest priority score for presentation to the student.

-3-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

8.   (Original) The sequencing system of claim 6, wherein when a subset of the plurality of learning items have the same high priority score, the problem selector selects the learning item for presentation at random from the subset of learning items with the same high priority score.

9.   (Previously Presented) The sequencing system of claim 6, wherein the sequencing algorithm increases the priority score for each incorrectly answered learning item, wherein the probability of each incorrectly answered learning item being again selected by the problem selector increases, whereby delay in learning item reappearance decreases.

10.   (Previously Presented) The sequencing system of claim 6, wherein the sequencing algorithm decreases the priority score for each correctly answered learning item, wherein the probability of that learning item being again selected by the problem selector decreases, whereby delay in learning item reoccurrence increases.

11.   (Previously Presented) The sequencing system of claim 10, wherein the sequencing algorithm decreases the priority score for each correctly answered learning item as a function of the student's response time in answering the question, wherein delay in a particular learning item's reappearance increases as the student's response time to the particular learning item decreases.

-4-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

12.   (Original) The sequencing system of claim 5, wherein the sequencing algorithm prevents the same learning item from recurring for a predetermined number of trials.

13.   (Original) The sequencing system of claim 6, wherein each learning item may be assigned an initial priority score.

14.   (Original) The sequencing system of claim 13, wherein the sequencing algorithm does not modify the priority score of each item until after its first presentation.

15.   (Original) The sequencing system of claim 14, wherein the initial order of appearance of all, or some, of the learning items may determined in advance by assigning all, or some, of the learning items initial priority scores in ascending or descending order.

16.   (Original) The sequencing system of claim 11, wherein the software for implementing the trial loop includes a learning item retirement feature, wherein the learning items are retired from the problem database upon meeting a predetermined learning criterion.

17.   (Previously Presented) The sequencing system of claim 16, wherein a learning criterion for each particular learning item is a function of the student's accuracy in answering the learning item, and response speed for each correct answer, over a predetermined number of repetitions of the learning item.

-5-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

18. (Original) The sequencing system of claim 17, wherein a session resumption feature stores an individual learner's data for learning items, in terms of speed, accuracy, and problem retirement status for continuing the learning during another session at a later time.

19. (Original) The sequencing system of claim 17, wherein the session resumption feature allows learning to continue at another time whence the retirement count of retired learning items is reduced, bringing them back for review and "re-retiring" if performance still meets learning criteria.

20. (Original) The sequencing system of claim 17, wherein the session resumption feature allows previously retired learning items brought back for review to rejoin the active problem set if performance criteria do not meet the previously established learning criteria.

21. (Original) A learning item sequencing system for optimizing a student's learning, comprising:

a computer including a central processing unit, a visual display device, at least one input device, and one or more memory portions;

the memory portions comprising:

a problem database, wherein a plurality of learning items for presentation to the student is stored in the database, and further wherein each learning item has an associated priority score;

-6-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

a trial record database, for storing a record containing response data regarding the student's response to each learning item, the response data collected for each learning item including the student's accuracy in answering each learning item · and the student's response speed · for each correctly answered learning item, the response data further including the number of trials since each particular learning item was last presented;

software for implementing a trial loop, wherein the learning trials are presented to the student and the response data are collected, the software including a problem selector, wherein the problem selector selects the learning item with the highest priority score for presentation to the student; and

software for implementing a sequencing algorithm, wherein the algorithm continuously updates the priority scores for each learning item as a function of the response data collected from the prior learning trials, the sequencing algorithm increasing the priority score for each incorrectly answered learning item and decreasing the priority score for each correctly answered learning item, wherein the probability of a particular learning item being again selected by the problem selector increases or decreases as a function of priority score.

22. (Original) The sequencing system of claim 21, wherein the sequencing algorithm continuously updates the priority score of each learning item based on the response data collected for the immediately proceeding learning trial.

-7-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

23.   (Original) The sequencing system of claim 21, wherein when a subset of the plurality of learning items have the same high priority score, the problem selector selects the learning item for presentation at random from the subset of learning items with the same high priority score.

24.   (Original) The sequencing system of claim 21, wherein the sequencing algorithm decreases the priority score for each correctly answered learning item as a function of the student's response time in answering the question, wherein the faster the student's response time the greater the decrease in priority score.

25.   (Original) The sequencing system of claim 21, wherein the sequencing algorithm prevents the same learning item from recurring for a predetermined number of trials.

26.   (Original) The sequencing system of claim 21, wherein the priority score associated with each learning item may be assigned an initial value.

27.   (Previously Presented) The sequencing system of claim 26, wherein the sequencing algorithm does not modify the priority score of each learning item until after the first presentation of each particular learning item.

28.   (Original) The sequencing system of claim 26, wherein the initial order of appearance of all, or some, of the learning

-8-

items may determined in advance by assigning all, or some, of
the learning items initial priority scores in ascending or
descending order.

29.   (Original) The sequencing system of claim 21, wherein
the software for implementing the trial loop includes a learning
item retirement feature, wherein the learning items are retired
from the problem database upon meeting a predetermined learning
criterion.

30.   (Original) The sequencing system of claim 21, wherein
the learning criterion for each particular learning item is a
function of the student's accuracy in answering that learning
item, and response speed for each correct answer, over a
predetermined number of repetitions of the learning item.

31.   (Previously Presnted) A method for learning item
sequencing for optimizing a student's learning speed, the method
comprising:
    supplying a computer including one or more memory portions;
    the memory portions having software which performs the
steps of:
        building and maintaining a problem database containing
a plurality of learning items;
        building and maintaining a trial record database, for
storing response data regarding the student's response to each
learning item, wherein the response data includes data relating
to speed and accuracy;

-9-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

implementing a trial loop, wherein the learning items are presented to the student and response data are collected; and

implementing a sequencing algorithm, wherein the algorithm sequences the learning items to be presented as a function of the response data collected from prior learning trials by associating priority scores with learning items and restricting certain learning items from being presented in at least one learning trial.

32-62.   (Cancelled)

63.   (Previously Presented) The learning system of claim 1, wherein the sequencing algorithm sequences categories of learning items.

64.   (Previously Presented) The learning system of claim 1, wherein the learning items comprise categories of learning items.

65.   (Previously Presented) The learning system of claim 1, wherein the sequencing algorithm further includes one or more parameters selected from the group consisting of relative importance of speed and accuracy, minimum trials separating learning item recurrence, and retirement criteria, wherein one or more parameters may be adjusted to suit different learning material, tasks or individuals.

-10-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

66.   (Previously Presented) The learning system of claim 21, wherein the sequencing algorithm sequences categories of learning items.

67. (Previously Presented) The learning system of claim 21, wherein the learning items comprise categories of learning items.

68. (Previously Presented) The learning system of claim 21, wherein the sequencing algorithm further includes one or more parameters selected from the group consisting of relative importance of speed and accuracy, minimum trials separating learning item recurrence, and retirement criteria, wherein one or more parameters may be adjusted to suit different learning material, tasks or individuals.

69. (Currently Amended) The learning system of claim [21] 31, wherein the sequencing algorithm sequences categories of learning items.

70. (Currently Amended) The learning system of claim [21] 31, wherein the learning items comprise categories of items.

71. (Previously Presented) The learning item sequencing method of claim 31, wherein the step of building and maintaining a problem database containing a plurality of learning items comprises building a plurality of learning items representing categories of items.

-11-

Appln No. 10/020,718
Amdt date March 3, 2004
Reply to Office action of December 31, 2003

72. (Previously Presented) The learning sequencing method of claim 31, wherein the sequencing algorithm further includes one or more parameters selected from the group consisting of relative importance of speed and accuracy, minimum trials separating learning item recurrence, and retirement criteria, wherein one or more parameters are adjusted to suit different learning material, tasks or individuals.

-12-